

AMENDMENTS TO THE CLAIMS This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Withdrawn) A process for the arylation and isomerization of unsaturated linear fatty acids and/or alkyl esters to their aryl branched counterparts which comprises arylating and isomerizing a feedstock in the presence of at least one acidic zeolite catalyst, wherein said zeolite contains ring structures of at least 10 members, wherein said feedstock comprises unsaturated linear fatty acids, alkyl esters of unsaturated fatty acids or mixtures thereof and at least one aromatic compound.
2. (Previously Presented) The process according to claim 20 wherein the feedstock comprises of at least 50% by weight of unsaturated fatty acids, alkyl esters of unsaturated fatty acids or mixtures thereof.
3. (Original) The process of claim 2 wherein the feedstock comprises of at least 70% by weight oleic acid.
4. (Previously Presented) The process of claim 20 wherein the feedstock further comprises at least one aryl compound.
5. (Original) The process of claim 4 wherein said aryl compound is optionally substituted with at least one heteroatom.
6. (Original) The process of claim 4 wherein said aryl compound optionally contains at least one heteroatom in its cyclic ring structure.
7. (Original) The process of claim 4 wherein said aryl compound is selected from the group consisting essentially of benzene, toluene, xylene, cumene, aniline, phenol, cymene, styrene, mesitylene, mixtures thereof and the like.

8. (Withdrawn) The process of claim 1 wherein said zeolite comprises at least one of the following framework structures: AEL, AFO, AHT, BOG, CGF, CGS, CON, DFO, EUO, LAU, MTT, NES, PAR, TON, MEL, AFI, ATO, ATS, CAN, LTL, MTW, ROG, AET, UTD-1, VFI, FAU, FER, HEU, AFS, AFY, BEA, BPH, CLO, EMT, FAU, GME, MOR, MFI, MEL, MEN or mixtures thereof.

9. (Withdrawn) The process of claim 8 wherein the $\text{SiO}_2 / \text{Al}_2\text{O}_3$ ratio of the zeolite is at least 5.

10. (Withdrawn) The process of claim 1 wherein said acidic zeolite catalyst is characterized a three-dimensional channel pore structure wherein at least one channel structure has a pore size diameter of at least 6Å.

11. (Withdrawn) The process of claim 10 wherein said zeolite comprises at least one of the following framework structures: CON, DFO, FAU, AFS, AFY, BEA, BPH, EMT, GME, MOR, or mixtures thereof.

12. (Withdrawn) The process of claim 10 wherein said zeolite contains at least one channel structure having a pore diameter of at least 6.5 Å.

13. (Withdrawn) A process for the arylation and isomerization of unsaturated linear fatty acids and/or alkyl esters to their aryl branched counterparts which comprises arylating and isomerizing a feedstock in the presence of at least one acidic zeolite catalyst, wherein said acidic catalyst comprises a mesoporous crystalline phase having pore walls containing primary and secondary crystalline building unit structures, wherein said feedstock comprises unsaturated linear fatty acids, alkyl esters of unsaturated fatty acids or mixtures thereof and at least one aromatic compound.

14. (Withdrawn) The process of claim 13 wherein said catalyst comprises both mesopores and micropores.

15. (Withdrawn) The process of claim 14 wherein said catalyst is a mesoporous aluminosilicate or a mesoporous metal containing aluminosilicate.

16. (Withdrawn) The process of claim 15 wherein said mesoporous aluminosilicate is a mesoporous zeolite.

17. (Withdrawn) The process of claim 16 wherein said mesoporous zeolite catalyst material comprises mesopores of 15-500Å and primary and secondary nanosized zeolite structural units in the walls that separate mesopores.

18. (Withdrawn) The process of claim 16 wherein said mesoporous zeolite comprises hexagonal mesopores, the pore wall structures of said mesopores containing primary and secondary zeolite building units.

19. (Withdrawn) The process of claim 18 wherein said primary and or secondary crystalline building units are based on at least one zeolite selected from the group consisting of zeolite A, Beta zeolite, zeolite X, zeolite Y, zeolite L, zeolite ZK-5, zeolite ZK-4, zeolite ZSM-5, zeolite ZSM-11, zeolite ZSM-12, zeolite ZSM-20, ZSM-35, zeolite ZSM-23, VPI-5 and mixtures thereof.

20. (Previously Presented) A process for the arylation and isomerization of unsaturated linear fatty acids and/or alkyl esters to their aryl branched counterparts which comprises arylating and isomerizing a feedstock in the presence of at least one acidic zeolite catalyst, wherein said acidic catalyst comprises at least one metal ion exchanged acidic catalyst, wherein said catalyst comprises at least one non-zero valent metal ion, wherein said feedstock comprises unsaturated linear fatty acids, alkyl esters of unsaturated fatty acids or mixtures thereof and at least one aromatic compound.

21. (Original) The process of claim 20 wherein said non-zero valent metal ion is selected from the group consisting essentially of monovalent metal, divalent metal, trivalent metal, tetravalent metal, pentavalent metal, hexavalent metal and mixtures thereof.

22. (Original) The process of claim 21 wherein said higher valent metal is selected from the group consisting Li^+ , Cu^+ , Rh^+ , Ir^+ , Mg^{2+} , Ca^{2+} , Mn^{2+} , Fe^{2+} , Co^{2+} , Ni^{2+} , Cu^{2+} , Zn^{2+} , Sr^{2+} , Mo^{2+} , Pd^{2+} , Sn^{2+} , Pt^{2+} , Sc^{3+} , Cr^{3+} , Fe^{3+} , Co^{3+} , Ga^{3+} , Y^{3+} , Nb^{3+} , Ru^{3+} , Rh^{3+} , Ir^{3+} , Bi^{3+} , Ti^{4+} , Mn^{4+} , Zr^{4+} , Mo^{4+} , Sn^{4+} , V^{5+} , Nb^{5+} , Mo^{6+} , mixtures thereof and the like.

23. (Original) The process of claim 20 wherein the metal ion concentration is at least 0.001% of the exchange capacity of the catalyst support.

24. (Original) The process of claim 23 wherein the metal ion concentration is at least 0.5% of the exchange capacity.

25. (Original) The process of claim 23 wherein the metal ion concentration is in the range of 0.001 to above 200% exchange level.

26. (Withdrawn) A process for the arylation and isomerization of unsaturated linear fatty acids and/or alkyl esters to their aryl branched counterparts which comprises arylating and isomerizing a feedstock in the presence of at least one catalyst selected from the group consisting essentially of acid metal oxides comprising zirconia, niobia, silica, tungstate, or molybdates; polyoxometallates; metal triflates and mixtures thereof, wherein said feedstock comprises unsaturated linear fatty acids, alkyl esters of unsaturated fatty acids or mixtures thereof and at least one aromatic compound.

27. (Withdrawn) The process of claim 26 wherein said polyoxometallate is a heteropolyacid selected from the group consisting essentially of

$H_4PM_{11}VO_{40}$
 $K_xH_{4-x}PM_{11}VO_{40}$
 $H_5PM_{10}V_2O_{40}$
 $(NH_4)_6P_2Mo_{18}O_{62}$
 $H_3PM_{12}O_{40}$, $H_3PW_{12}O_{40}$
 $H_4SiW_{12}O_{40}$, $H_4SiMo_{12}O_{40}$
 $H_9P_2V_3W_{15}O_{62}$
 $H_5PM_{10}V_2O_{40}$
 $H_6P_2W_{18}O_{62}$
 $H_3PM_{10}W_6O_{40}$
 $H_5PV_2Mo_{10}O_{40}$

and mixtures thereof.

28. – 30. (Canceled)